

U.S. Patent Application Serial No. 10/572,852
Response to OA dated August 27, 2007

REMARKS

Claim 1 has been amended in order to more particularly point out, and distinctly claim the subject matter to which the applicants regard as their invention. The applicants respectfully submit that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated August 27, 2007.

CLAIM REJECTION UNDER 35 U.S.C. § 112:

In the Office Action, Claims 1-9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action alleges that in Claim 1, line 6, the expression of "the billet may have a compression ratio..." is considered to be indefinite since it is not clear what scope is claimed.

Claim 1 has been amended in a manner to overcome this rejection. Reconsideration and removal of the rejection are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103:

In the Office Action, Claims 1, 3-6, 8 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over either Nakao et al. (U.S. Patent Publication No. 2001/0039710) or JP 2002-66724 (applicant's admitted prior art as set forth in page 2 of the specification) to Tanaka et al. and further in view of Kenney et al. (U.S. Patent No. 4,473,103). Reconsideration and removal of this rejection

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are respectfully requested in view of the present amendment to Claim 1 and the following remarks.

Claim 1, as amended, now recites the specific temperature to which the billet is heated is the solidus temperature of the metal matrix. Support for the amendment to Claim 1 can be found on page 10, lines 12-15 of the specification of the instant application and in FIG. 9.

Heating the billets at least to the solidus temperature of the metal matrix allows the metal matrix to flow through among the particles of the ceramic reinforcing material in a lateral outward direction while allowing nearly all of the particles of the ceramic reinforcing material to stay in a central portion of the billet being pressure formed, with the remainder being forced by the metal matrix to flow in the lateral outward direction as the metal matrix flows in the lateral outward direction, as now recited in amended Claim 1. By virtue of the unique behavior of the metal matrix and the particles of the ceramic reinforcing material, the formed product contains the particles of the ceramic reinforcing material distributed over the entire region thereof, as also now recited in amended Claim 1. Support for the behavior of the metal matrix and the particles of ceramic reinforcing material can be found, for example, in FIGS. 2G-2I and the related description thereof.

It is respectfully submitted that Nakao et al. shows a process for manufacturing a part of an aluminum-based composite material wherein a blank of the aluminum-based composite material is press-formed while holding the blank at an appropriate temperature. The appropriate heating temperature employed in Nakao et al. ranges from the solidus temperature of the aluminum alloy minus 50 degrees C., as specified in Claim 1 of Nakao et al. Due to the heating temperature not exceeding the solidus temperature, the aluminum alloy does not possess sufficient flowability to

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realize the behavior of amended Claim 1 of the present invention. Furthermore, due to insufficient flowability of the aluminum alloy, the process of Nakao et al. is unable to give the process-formed product a ceramic volume content differing from one portion to another, as recited in amended Claim 1 of the present invention.

Tanaka et al. shows a process of press-forming a billet of aluminum-based metal composite material into a product while the billet is heated to a semi-solidified state. The formed product comprises a heat sink for semiconductor devices having cooling fins on one side of a heat sink body. The body contains particles of ceramic reinforcing material for rigidity requirement, while the fins are formed by a metal matrix material and free from ceramic reinforcing material for improving the cooling capacity. Thus, the ceramic reinforcing material is contained only in a limited part of the press-formed product, but not distributed over the entire region of the product, as required by present Claim 1, as amended.

In view of the amendment to claim 1, and the above remarks, removal of this rejection is respectfully submitted.

In the Office Action, Claims 2 and 7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over either Nakao et al. or Tanaka et al. and further in view of Kenney et al. as applied to Claim 1 above, and further in view of Ishizuka (JP 2-220760). Reconsideration and removal of this rejection are respectfully requested.

Nakao et al. and Tanaka et al. are discussed above. It appears as though the Office Action

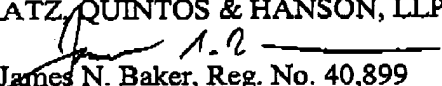
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is mischaracterizing the teachings of Ishizuka, as Ishizuka does not disclose pressure forming a billet having a height varying from one portion to another, as claimed. In view of the amendment to Claim 1, and the above remarks, removal of this rejection is respectfully requested.

In view of the aforementioned amendments and accompanying remarks, Claims 1-9, as amended, are believed to be patentable and in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the Applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,
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Enclosure: Petition for Extension of Time